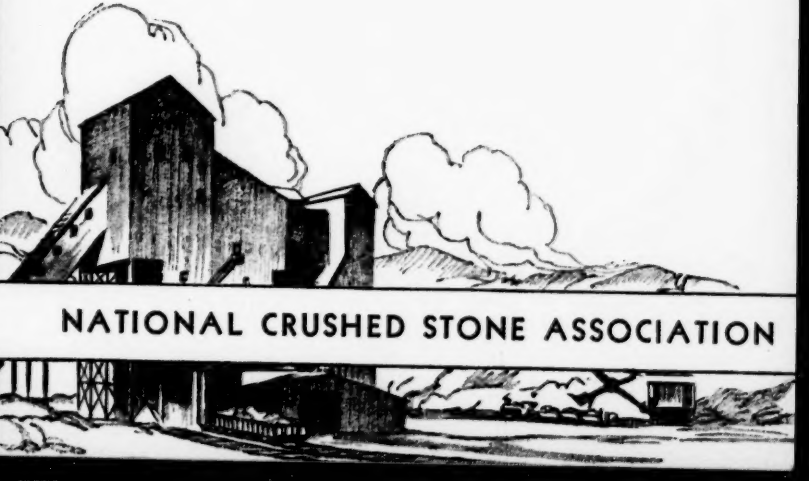




The **CRUSHED STONE JOURNAL**



OFFICIAL PUBLICATION

♦ NATIONAL CRUSHED STONE ASSOCIATION



The Crushed Stone Journal

Official Publication of the NATIONAL CRUSHED STONE ASSOCIATION

J. R. BOYD, Editor

NATIONAL CRUSHED
STONE ASSOCIATION



1735 14th St., N. W.
Washington, D. C.

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In This Issue

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FORUM FOR DISCUSSION OF INDUSTRY PROBLEMS

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MANUFACTURERS' DIVISION LOSES CAPABLE LEADER
IN DEATH OF GORDON BUCHANAN

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PLANNING FOR FUTURE HIGHWAYS
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THE CRUSHED STONE JOURNAL

WASHINGTON, D. C.

VOLUME 11 NUMBER 1

JANUARY-FEBRUARY, 1936

NINETEENTH ANNUAL CONVENTION PROVIDES VALUABLE FORUM FOR DISCUSSION OF INDUSTRY PROBLEMS

From all sections of the country producers of crushed stone foregathered in St. Louis, Missouri, during the week of January 27, at the Nineteenth Annual Convention of the National Crushed Stone Association, and again, had forcibly brought home to them the very real advantages of meeting once a year to discuss mutual problems and to learn from speakers well qualified by training and experience, of notable developments in the various technical aspects of the crushed stone industry. Judged by the extent and character of the discussions which followed the presentation of practically every paper on the program, the choice of subjects was most favorably received. Attendance was undoubtedly somewhat curtailed in view of the extreme weather conditions prevailing throughout almost the entire United States during the week of the convention. What the meeting may have lacked in attendance, however, was more than compensated for by the enthusiastic interest evidenced by those present.

In the following we shall endeavor to outline briefly - primarily for the benefit of those who found it impossible to be present in St. Louis - the more interesting aspects of the Nineteenth Annual meeting.

The opening session of the convention, held on Monday morning, January 27 was called to order by Russell Rarey, President of the Association. President Rarey in his opening address confined his remarks to a brief review of the Association's activities during the past year, in view of the detailed reports subsequently to be submitted by the Director of the Bureau of Engineering and the Secretary. He outlined the events leading up to the formation of the Mineral Aggregates Institute, pointed out certain inherent weaknesses in its present set-up and stated that in his opinion either the Institute should be made a vital and forceful agency for future cooperation between the crushed stone, sand and gravel, and slag industries, or it should be reduced to a common problems committee to be appointed by the member Associations, to discharge such duties and give consideration to such problems as the member Associations may determine. In closing he expressed the conviction that the ultimate future success and growth of the Association lies in an increase in the number of member companies which would result in an increased income and correspondingly would broaden the opportunities of the Association for rendering service to its members. Until such time as the membership can be substantially increased, he laid especial emphasis on the fact that the responsibility of preserving the Association on approximately its present basis, lies very largely with the present membership.

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WASHINGTON, D. C.

JANUARY-FEBRUARY, 1932

VOLUME 11 NUMBER 1

WINTERHUT ANNUAL CONVENTION PROVIDES VALUABLE FOUNDRY FOR DISCUSSION OF INDUSTRY PROBLEMS

From all sections of the country producers of crushed stone converged in St. Louis, Missouri, during the week of January 27, at the Winterhuth Annual Convention of the National Crushed Stone Association, and, again, had forcibly brought home to them the very real advantages of meeting once a year to discuss mutual problems and to learn from speakers well qualified by training and experience of notable developments in the various technical aspects of the crushed stone industry. Judged by the extent and character of the discussions which followed the presentation of practically every paper on the program, the choice of subjects was most favorably received. Attendance was undoubtedly somewhat curtailed in view of the extreme weather conditions prevailing throughout almost the entire United States during the week of the convention. What the meeting may have lacked in attendance, however, was more than compensated for by the enthusiasm, interest evidenced by those present.

In the following we shall endeavor to outline briefly - primarily for the benefit of those who found it impossible to be present in St. Louis - the more interesting aspects of the Winterhuth Annual meeting.

The opening session of the convention, held on Monday morning, January 27, was called to order by Russell Barry, President of the Association. Barry, in his opening address, outlined his remarks to a brief review of the Association's activities during the past year, in view of the detailed reports submitted by the Director of the Bureau of Engineering and the Secretary. He outlined the events leading up to the formation of the Winterhuth Institute, pointed out certain inherent weaknesses in the present set-up and stated that in his opinion either the Institute should be made a vital and formal agency for future cooperation between the crushed stone, sand and gravel, and slag industries, or it should be reduced to a domestic products committee to be appointed by the member associations, to discharge such duties and give consideration to such problems as the member associations may determine. In closing he expressed the conviction that the Institute's future success and growth of the Association lies in an increase in the number of member companies which would result in an increased income and correspondingly would broaden the opportunities of the Association for rendering service to its members. Until such time as the membership can be substantially increased, he felt especially emphatic on the fact that the responsibility of preserving the Association on approximately its present basis, lies very largely with the present membership.

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In previous years it has been customary during the opening session of the convention to have each member of the Board of Directors report on business conditions during the preceding year and the outlook for the coming year. An innovation in this procedure was introduced at the St. Louis Convention, where, instead of calling upon the members of the Board, each regional vice-president was requested to make a report for his entire region on the basis of information previously obtained from the various members of the Board located within his region. This procedure proved a popular departure from previous custom and will undoubtedly be followed to advantage in future years. No attempt will be made here to report in detail the comments of each regional vice-president, as the complete reports have appeared in the Trade Press. In general production in 1935 was somewhat less than in 1934, but the outlook for 1936 indicates a substantial improvement.

It has been disappointing to his hosts of friends in the crushed stone industry that our regional vice-president for the Canadian Region, Charles M. Doolittle, has found it impossible to be present at the conventions of the last few years, and President Rarey in calling upon Mr. Doolittle for his regional report expressed in the following words the sentiment of the entire convention:

"Among our regional vice-presidents we today are privileged to greet one of our oldest and best-liked friends. His presence here lends a bit of an international aspect to the meeting, but better than that aspect is the opportunity of seeing and greeting personally my friend and your friend, Charles Doolittle of Canada."

Following reports from the regional vice-presidents, A.T. Goldbeck, Engineering Director, reviewed, in a paper entitled, "A Decade with the Bureau of Engineering," some of the more outstanding accomplishments of the Bureau since its inception in 1925. Mr. Goldbeck's discussion proved of absorbing interest and for the benefit of those who could not attend as well as for the permanent files of those who were present, a copy of his paper has been forwarded to each member of the Association.

The Greeting Luncheon on Monday, presided over by E. J. Krause, representing our St. Louis hosts, was welcomed on behalf of the Mayor of St. Louis by Col. E. J. McMahon, well-known to us in his former capacity as Secretary of the St. Louis Quarrymen's Association. Harold Williams, Member of the Boston Bar, and honorary member of the Board of Directors of the Association addressed the luncheon on the subject, "Industry's Opportunity to Aid Recovery." We always look forward with pleasure to hearing from Mr. Williams as he never fails to give us a stimulating discussion.

The session on Monday afternoon was opened with a paper by Mr. Frank Sheets, Consulting Engineer, Portland Cement Association, Chicago, Illinois, entitled, "Concrete Pavement Design", which was presented by Mr. M. D. Caton, because of the unavoidable absence of Mr. Sheets. In his paper, Mr. Sheets gave a comprehensive picture of this important subject which we anticipate publishing in full at a somewhat later date. Secretary Boyd then gave an analysis of the Association's affairs following which the remainder of the af-

In previous years it has been customary during the opening session of the convention to have each member of the Board of Directors report on his work conditions during the preceding year and the outlook for the coming year. An innovation in this procedure was introduced at the St. Louis Convention, where, instead of calling upon the members of the Board, each regional vice-president was requested to make a report for his entire region on the basis of information previously obtained from the various members of the Board located within his region. This procedure proved a popular departure from previous custom and will undoubtedly be followed to advantage in future years. No attempt will be made here to report in detail the comments of each regional vice-president, as the complete reports have appeared in the Trade Press. In general production in 1935 was somewhat less than in 1934, but the outlook for 1936 indicates a substantial improvement.

It has been disappointing to his hosts of friends in the crowded streets of our city that our regional vice-president for the Southern Region, Charles M. Boettig, was found it impossible to be present at the convention of the last few years, and President Barry, in calling upon Mr. Boettig for his regional report expressed in the following words the sentiment of the entire convention:

"Among our regional vice-presidents we today are privileged to greet one of our oldest and best liked friends. His presence here lends a bit of an international aspect to the meeting, but better than that aspect is the opportunity of seeing and greeting personally my friend and your friend, Charles Boettig of Canada."

Following reports from the regional vice-presidents, A. I. Goldbeck, Executive Director, reviewed, in a paper entitled, "A Decade with the Bureau of Entomology," some of the more outstanding accomplishments of the Bureau since its inception in 1925. Mr. Goldbeck's discussion proved of absorbing interest and for the benefit of those who could not attend as well as for the permanent files of those who were present, a copy of his paper has been forwarded to each member of the Association.

The greeting luncheon on Monday, presided over by E. J. Arnone, regional secretary for St. Louis hosts, was welcomed on behalf of the Board of St. Louis by Col. E. J. McMahon, well-known to us in his former capacity as Secretary of the St. Louis Quaternary Association. Harold Williams, Member of the Board of Directors of the Association and Executive Director of the St. Louis Bar, and Executive Director of the Association, addressed the luncheon on the subject, "Industry's Opportunity to Aid Recovery." We always look forward with pleasure to hearing from Mr. Williams as he never fails to give us a stimulating discussion.

The session on Monday afternoon was opened with a paper by Mr. Frank Sheeta, Consulting Engineer, Portland Cement Institute, Chicago, Illinois, entitled, "Concrete Reinforcement Design," which was presented by Mr. M. G. Eaton, because of the immediate interest of Mr. Sheeta. In his paper, Mr. Sheeta gave a comprehensive picture of this important subject which we anticipated with interest in full at a somewhat later date. Secretary Boyd then gave an outline of the Association's efforts following which the remainder of the afternoon

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ternoon was devoted to a detailed discussion of Association policy for the ensuing year. Copy of Mr. Boyd's paper has been forwarded to each member of the Association and the action of the Association concerning its policies for 1936 have recently been made known to members through a communication from President Rodes.

Tuesday morning proved to be one of the most interesting sessions of the entire convention, the first part being devoted to a symposium on stabilized roads and the second part to a most able and enlightening address by Mr. H. S. Fairbank, Chief, Bureau of Information, U.S. Bureau of Public Roads, entitled, "Planning for Future Highways." No further comments concerning these discussions will be made here as the symposium on stabilized roads has already been forwarded to each member of the Association and we are including in this issue of the "Journal" Mr. Fairbank's admirable contribution to our program.

The Manufacturers' Divisions of the National Crushed Stone Association and the National Sand and Gravel Association jointly acted as host at the luncheon held on Tuesday for all in attendance at the convention, the National Sand and Gravel Association and the National Slag Association having convened their opening sessions Tuesday morning. No formal program was scheduled on Tuesday afternoon in order to permit the convention delegates to have an uninterrupted opportunity of carefully inspecting the Joint Exposition of the two Manufacturers' Divisions. The Exposition had previously had its formal opening on Monday evening at 7:30, preceded by a reception and supper which was one of the most popular and well-attended functions of the convention. The exhibitors participating in the Joint Exposition are to be most highly commended upon the character of their displays. This feature of the annual convention has for many years been looked upon by both delegates and exhibitors with great favor and we believe attained a new popularity at St. Louis, in view of the additional time permitted for an inspection of the various exhibits.

The program for Wednesday was sponsored jointly by the National Crushed Stone Association, the National Sand and Gravel Association, and the National Slag Association, acting through the instrumentality of the Mineral Aggregates Institute.

"The Function of Federal Public Works in the Stimulation of Industrial Recovery" was presented by Col. H. B. Hackett, Assistant Administrator, Federal Emergency Administration of Public Works, as the opening paper on Wednesday morning. Col. Lawrence Westbrook, Assistant Administrator, Works Progress Administration, at the last minute found it impossible to attend and his paper entitled, "The Construction Program and the Works Progress Administration" was very ably presented by Mr. Alport, Assistant Works Progress Administrator of Missouri. Public works projects whose funds were supplied in whole or in part by the Federal Government have constituted an important outlet for our materials during the past few years and our market for 1936 will undoubtedly be influenced by such funds. To what extent public works aid in the stimulation of industrial recovery and in the providing of employment is commanding public attention throughout the entire country and certainly we have a very real interest in the ultimate judgment in this regard. In view of these cir-

Afternoon was devoted to a detailed discussion of Association policy for the ensuing year. Copy of Mr. Boyd's paper has been forwarded to each member of the Association and the action of the Association concerning its policies for 1936 have recently been made known to members through a communication from President Hobbs.

Tuesday morning proved to be one of the most interesting sessions of the entire convention, the first part being devoted to a symposium on stabilized roads and the second part to a most able and enlightening address by Mr. H. B. Fairbank, Chief, Bureau of Information, U.S. Bureau of Public Roads, entitled, "Planning for Future Highways." No further comments concerning these discussions will be made here as the symposium on stabilized roads has already been forwarded to each member of the Association and we are including in this issue of the "Journal" Mr. Fairbank's valuable contribution to our program.

The Manufacturers' Division of the National Crushed Stone Association and the National Sand and Gravel Association jointly acted as host at the luncheon held on Tuesday for all in attendance at the convention, the National Sand and Gravel Association and the National Crushed Stone Association having coordinated their opening sessions Tuesday morning. No formal program was scheduled on Tuesday afternoon in order to permit the convention delegates to have an uninterrupted opportunity of carefully inspecting the Joint Exposition of the two Manufacturers' Divisions. The Exposition had previously had its formal opening on Monday evening at 7:30, preceded by a reception and supper which was one of the most popular and well-attended functions of the convention. The exhibits participating in the Joint Exposition are to be most highly commended upon the character of their displays. This feature of the annual convention has for many years been looked upon by both delegates and exhibitors with great favor and we believe obtained a new popularity at St. Louis, in view of the excellent time permitted for an inspection of the various exhibits.

The program for Wednesday was sponsored jointly by the National Crushed Stone Association, the National Sand and Gravel Association, and the National Highways Association, acting through the instrumentality of the Mineral Aggregates Institute.

"The Function of Federal Public Works in the Stimulation of Industrial Recovery" was presented by Col. H. E. Harkness, Assistant Administrator, Federal Emergency Administration of Public Works, as the opening paper on Wednesday morning. California Westbrook, Assistant Administrator, Works Progress Administration, at the last minute found it impossible to attend and his paper, entitled, "The Construction Program and the Works Progress Administration" was very ably presented by Mr. Abbott, Assistant Works Progress Administrator of Missouri. Public works projects whose funds were supplied in whole or in part by the Federal Government have constituted an important outlet for our materials during the past few years and our market for 1936 will undoubtedly be increased of such funds. To what extent public works aid in the stimulation of industrial recovery and in the providing of employment is a commanding public question throughout the entire country and certainly we have a very real interest in the wisest judgment in this regard. In view of these cir-

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cumstances the addresses by Col. Hackett and Col. Westbrook were of outstanding interest and are now being printed for distribution in the immediate future. The morning session was concluded with a paper by Abram S. Myers on the subject of, "The Future of Industrial Cooperation Under Governmental Auspices." It was distinctly disappointing that Mr. Myers, a former Chairman of the Federal Trade Commission and a specialist in the anti-trust law field, was prevented from attending. Mr. Myers' paper was a thoughtful discussion of a subject of which we have by no means heard the last. It also is now being printed and will shortly be available for distribution.

On Wednesday afternoon we enjoyed the privilege of hearing John C. Gall, Associate Counsel of the National Association of Manufacturers, discuss "The Significance of Social Security and Labor Legislation." Mr. Gall exhibited an amazing familiarity with a complicated subject and one which we believe is definitely to become increasingly important not only to our own industry but to industry in general. For an illuminating and comprehensive picture of the situation produced by the passage of this legislation we earnestly recommend a careful reading of Mr. Gall's presentation, which will shortly be distributed.

The Institute Day program was concluded with the report of the Committee on Resolutions. This Committee, including E. Guy Sutton, John Prince, Stirling Tomkins, C. L. McKenzie, and Robert J. Potts as Chairman, put in many arduous hours of painstaking effort preliminary to making their report, which was amply attested by the excellency of their recommendations. The report was unanimously approved as a correct statement of the position of the crushed stone, sand and gravel, and slag industries on the public questions with which it deals and is now being printed for early distribution. Copies will also be made available to chairmen of important committees of the Federal Congress.

In place of the customary banquet held in former years by the National Crushed Stone Association, we joined with the National Sand and Gravel Association and the National Slag Association in sponsoring a dinner dance which was held on Wednesday evening. Immediately following the dinner, the assembled guests were addressed by Col. Willard T. Chevalier, Vice-President of the McGraw-Hill Publishing Co., on the subject, "Construction Revival - The Responsibilities of Industry." Col. Chevalier never fails to spellbind his audience and we are again indebted to him for his able contribution to our convention program. The remainder of the evening was devoted to a vaudeville program and dancing for the guests.

The concluding session of the convention was held on Thursday morning with the first order of business consisting of the presentation of awards for the National Crushed Stone Association Safety Contest. Daniel Harrington, Chief of the Health and Safety Branch of the U. S. Bureau of Mines, presented the awards in behalf of John Finch, Director of the Bureau. It seems appropriate to recall at this time that the National Crushed Stone Association Safety Contest, which is held under the auspices of the U.S. Bureau of Mines was inaugurated a number of years ago largely through the efforts of the late Nelson S. Greensfelder, the then editor of "The Explosives Engineer" magazine

summarized the addresses by Col. Hackett and Col. Westbrook were of outstanding interest and are now being printed for distribution in the immediate future. The morning session was concluded with a paper by Adam G. Myers on the subject of "The Future of Industrial Cooperation Under Governmental Assistance." It was distinctly disappointing that Mr. Myers, a former Chairman of the Federal Trade Commission and a specialist in the anti-trust law field, was prevented from attending. Mr. Myers' paper was a thoughtful discussion of a subject of which we have by no means heard the last. It also is now being printed and will shortly be available for distribution.

On Wednesday afternoon we enjoyed the privilege of hearing John C. Gail, Assistant Counsel of the National Association of Manufacturers, discuss "The Significance of Social Security and Labor Legislation." Mr. Gail exhibited an amazing familiarity with a complicated subject and one which we believe is definitely in becoming increasingly important not only to our own industry but to industry in general. For an illuminating and comprehensive picture of the situation produced by the passage of this legislation we earnestly recommend a careful reading of Mr. Gail's presentation, which will shortly be distributed.

The Institute Day program was concluded with the report of the Committee on Resolutions. This Committee, including H. Guy Sutton, John Prince, Bill Ling, Joseph, G. L. Holman, and Robert J. Sells as Chairman, has in many instances of painstaking effort preliminary to making their report, which was amply attested by the excellent quality of their recommendations. The report was unanimously approved as a correct statement of the position of the industry on the various issues and was being printed for early distribution. Copies will also be made available to members of important committees of the Federation.

In place of the customary banquet held in former years by the National Gravel Stone Association, we joined with the National Sand and Gravel Association and the National Lime Association in sponsoring a dinner dance which was held on Wednesday evening. Immediately following the dinner, the numerous guests were addressed by Col. William T. Cavert, Vice-President of the National Gravel Stone Association, on the subject, "Construction Revival - The Responsibility of Industry." Col. Cavert never fails in spelling his audience and we are again indebted to him for his contribution to our convention program. The remainder of the evening was devoted to a vaudeville program and dancing for the guests.

The concluding session of the convention was held on Thursday morning with the first order of business consisting of the presentation of awards for the National Gravel Stone Association Safety Contest. Daniel Harrington, Chief of the Health and Safety Branch of the U. S. Bureau of Mines, presented the awards in behalf of John King, Director of the branch. In some appropriate remarks at this time the National Gravel Stone Association was able to recall to mind the many efforts of the U. S. Bureau of Mines Safety Contest, which is held under the auspices of the latter organization. The contest is held under the auspices of the latter organization and has been a success in many respects. The contest is held under the auspices of the latter organization and has been a success in many respects.

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and a former resident of the City of St. Louis. The award for taking first place in this contest consists of a bronze plaque donated through the courtesy of "The Explosives Engineer" and to each entrant in the contest making a perfect safety record there is awarded a parchment reproduction of the plaque. The crushed stone industry lost an ardent and enthusiastic advocate of the safety movement in the death of Mr. Greensfelder a number of years ago. It is a fitting tribute, however, to the groundwork which he so ably laid that our industry's interest in accident prevention has been maintained to a gratifying degree and largely through the medium of the safety contest which he helped initiate.

Mr. Harrington traced the development of the safety movement in the mining industry and made some interesting observations concerning the part which the Bureau of Mines has played in this humanitarian effort.

The winner of the contest for the year 1934 was the Inland Quarry of the Inland Lime and Stone Co., Manistique, Michigan, which operated during that year a total of 366,685 man-hours without the occurrence of a lost-time accident. Mr. A. J. Cayia, representing the winning company, received the bronze plaque. Eighteen additional crushed stone plants completed the year 1934 with no lost-time accidents and were consequently accorded honorable mention and awarded parchment reproductions of the plaque. The following plants, listed in the relative order of their man-hours of exposure, were accorded honorable mention. To the winning company, as well as to those receiving honorable mention, we wish to extend our most sincere congratulations for their outstanding accomplishments in the field of accident prevention.

	Man-hours operated
Columbia Quarry Co., Krause No. 1 quarry, Columbia, Ill.	163,340
Marquette Cement Mfg. Co., Cape Girardeau qy., Cape Girardeau, Mo.	111,761
General Crushed Stone Co., Winchester quarry, Winchester, Mass.	100,479
General Crushed Stone Co., Le Roy quarry, Le Roy, N. Y.	72,341
General Crushed Stone Co., Akron quarry, Akron, N. Y.	72,274
North American Cement Corp., Berkeley 5&6 quarry, Martinsburg, W. Va.	62,755
New Haven Trap Rock Co., Plainville quarry #4, Plainville, Conn.	56,862
General Crushed Stone Co., Auburn quarry, Auburn, N. Y.	52,537
New Haven Trap Rock Co., Middlefield quarry, Middlefield, Conn.	46,857
American Lime & Stone Co., Union Furnace quarry, Tyrone, Pa.	44,504
General Crushed Stone Co., Watertown quarry, Watertown, N. Y.	44,251
North American Cement Corp., Catskill quarry, Catskill, N. Y.	40,799
Columbia Quarry Company, Columbia quarry #6, Chester, Ill.	27,924
John T. Dyer Quarry Co., Birdsboro quarry, Birdsboro, Pa.	25,392
North American Cement Corp., Howes Cave quarry, Howes Cave, N. Y.	24,798
New Haven Trap Rock Co., Cheshire quarry #6, Cheshire, Conn.	22,213
New Haven Trap Rock Co., Rocky Hill quarry #3, Rocky Hill, Conn.	19,227
Greene County Crushed Stone Co., Inc., Cairo quarry, Cairo, N. Y.	17,722

Following the presentation of the safety awards, T. C. Powers, Assistant to the Director of Research, Portland Cement Association, addressed the

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convention on the subject, "Large Size Aggregate for Concrete." Mr. Powers' discussion contained much of value to crushed stone producers and will be published in an early issue of "The Crushed Stone Journal."

Following Mr. Powers' paper, the convention was concluded with a business meeting at which time reports were received from the Auditing Committee and the Resolutions Committee, each of which was unanimously adopted. The concluding number on the program consisted of the report of the Nominating Committee which resulted in the unanimous election of the following officers and members of the Board of Directors.

President - H. E. Rodes, Nashville, Tenn.

Regional Vice-Presidents -

C. M. Doolittle, Canadian Region, Hamilton, Ont., Canada
E. Eikel, Southwestern Region, New Braunfels, Texas.
N. E. Kelb, Northern Region, Indianapolis, Indiana.
A. S. Lane, Eastern Region, Meriden, Conn.
J. A. Rigg, Central Region, Fort Spring, W. Va.
T. I. Weston, Southern Region, Columbia, S. C.
A. J. Wilson, Western Region, Watsonville, Calif.
Porter W. Yett, Northwestern Region, Portland, Oregon

Board of Directors -

H. E. Rodes, Chairman, Nashville, Tenn.
W. M. Andrews, New Castle, Pa.
C. C. Beam, Melvin, Ohio
W. P. Beinhorn, Minneapolis, Minn.
H. E. Billman, St. Louis, Mo.
A. J. Blair, Milwaukee, Wis.
L. J. Boxley, Roanoke, Va.
J. R. Boyd, Washington, D. C.
Gordon Buchanan, New York City
J. Reid Callanan, South Bethlehem, N. Y.
C. M. Doolittle, Hamilton, Ont., Canada
F. O. Earnshaw, Youngstown, Ohio
E. Eikel, New Braunfels, Texas
A. T. Goldbeck, Washington, D. C.
Otho M. Graves, Easton, Pa.
A. Acton Hall, Piqua, Ohio
George Hammerschmidt, Elmhurst, Ill.
J. L. Heimlich, Le Roy, New York
W. E. Hilliard, New Haven, Conn.
N. E. Kelb, Indianapolis, Ind.
E. J. Krause, St. Louis, Mo.
A. S. Lane, Meriden, Conn.
Thomas McCroskey, Knoxville, Tenn.
B. A. McKinney, West Roxbury, Mass.
Paul M. Nauman, Dubuque, Iowa
John Prince, Kansas City, Mo.
W. T. Ragland, Raleigh, N. C.
H. E. Rainer, Buffalo, N. Y.

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Russell Rarey, Columbus, Ohio
John Rice, Easton, Pa.
J. A. Rigg, Fort Spring, W. Va.
S. R. Russell, Wilmington, Delaware
James Savage, Buffalo, N. Y.
F. W. Schmidt, Jr., Morristown, N. J.
L. W. Shugg, Schenectady, N. Y.
John W. Stull, Rocky Point, Va.
Stirling Tomkins, New York City
T. I. Weston, Columbia, S. C.
Harold Williams, Boston, Mass.
A. J. Wilson, Watsonville, Calif.
R. S. Wilson, Little Rock, Ark.
W. F. Wise, Dallas, Texas
A. L. Worthen, New Haven, Conn.
Porter W. Yett, Portland, Ore.

At a meeting of the Manufacturers' Division held earlier during the convention, the following officers and members of the Board of the Division were unanimously elected.

Chairman - Gordon Buchanan, New York City

Vice-Chairman -

Bradley S. Carr, Chicago Heights, Illinois
J. Harper Fulkerson, Carbondale, Pa.
C. S. Huntington, Chicago, Illinois
H. A. Johann, St. Louis, Missouri
M. S. Lambert, Chicago, Illinois
Frank B. Ungar, St. Louis, Missouri

Secretary - J. R. Boyd, Washington, D. C.

Treasurer - W. E. Hilliard, New Haven, Conn.

Representing the Manufacturers' Division on the
National Board of Directors -

Gordon Buchanan, New York City
S. R. Russell, Wilmington, Delaware
L. W. Shugg, Schenectady, New York

Board of Directors -

Gordon Buchanan, Chairman, Pennsylvania Crusher Co., New York City.
J. Barab, Hercules Powder Co., Wilmington, Del.
Bradley S. Carr, American Manganese Steel Co., Chicago Heights, Ill.
F. E. Finch, Hardinge Co., York, Pa.
J. Harper Fulkerson, Cross Engineering Co., Carbondale, Pa.
H. T. Gracely, Marion Steam Shovel Co., Marion, Ohio
C. S. Huntington, Link-Belt Co., Chicago, Ill.

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Russell Barry, Columbus, Ohio
 John Rice, Boston, Pa.
 J. A. Rice, Fort Spring, W. Va.
 E. R. Russell, Wilmington, Delaware
 James Savage, Buffalo, N. Y.
 E. W. Schmidt, St. Louis, Missouri
 L. W. Shog, Schenectady, N. Y.
 John W. Smith, Rocky Point, Va.
 Sterling Tamm, New York City
 T. I. Weston, Columbia, S. C.
 Harold Williams, Boston, Mass.
 A. J. Wilson, Westerville, Ohio
 H. E. Wilson, Little Rock, Ark.
 W. F. Wise, Dallas, Texas
 L. L. Worthen, New Haven, Conn.
 Porter W. York, Portland, Ore.

At a meeting of the Manufacturers' Division held earlier during the convention, the following officers and members of the Division were unanimously elected:

Chairman - Gordon Buchanan, New York City

Vice-Chairman -

Bradley S. Carr, Chicago Heights, Illinois
 J. Harper Bulman, Cantonville, Pa.
 E. J. Burdette, Chicago, Illinois
 E. A. Johnson, St. Louis, Missouri
 W. E. Lambert, Chicago, Illinois
 Frank H. Unger, St. Louis, Missouri

Secretary - J. E. Boyd, Washington, D. C.

Treasurer - W. E. Millard, New Haven, Conn.

Representing the Manufacturers' Division on the National Board of Directors -

Gordon Buchanan, New York City
 E. R. Russell, Wilmington, Delaware
 L. W. Shog, Schenectady, New York

Board of Directors -

G. A. Buchanan, Chairman, Pennsylvania Crusher Co., New York City
 J. E. Carr, American Iron Works Co., Chicago Heights, Ill.
 E. J. Burdette, Hardinge Co., York, Pa.
 J. Harper Bulman, Gates Engineering Co., Cantonville, Pa.
 H. T. Gruesz, Martin Iron Works Co., Berlin, Ohio
 C. E. Washington, Clark-Hale Co., Chicago, Ill.

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H. A. Johann, Frog, Switch & Mfg. Co., St. Louis, Mo.
M. S. Lambert, Robins Conveying Belt Co., Chicago, Ill.
L. B. McKnight, Chain Belt Co., Milwaukee, Wis.
Albert E. Reed, The W. S. Tyler Co., Cleveland, Ohio
S. R. Russell, E.I. Du Pont De Nemours & Co., Wilmington, Del.
Bruce G. Shotton, Hendrick Mfg. Co., Pittsburgh, Pa.
L. W. Shugg, General Electric Co., Schenectady, N. Y.
C. W. Swanson, Illinois Powder Mfg. Co., St. Louis, Mo.
John Swenehart, Atlas Powder Co., Wilmington, Del.
P. C. Tennant, The Texas Co., New York City
S. W. Traylor, Traylor Eng. & Mfg. Co., Allentown, Pa.
Frank B. Ungar, Ludlow-Saylor Wire Co., St. Louis, Mo.
Roy Wills, Lima Locomotive Co., Lima, Ohio.
F. O. Wyse, Bucyrus-Erie Co., South Milwaukee, Wis.

The Treasurer of the Association, the Engineering Director and the Administrative Director are elected annually by the newly elected Board of Directors and at a meeting of the new Board held immediately following the conclusion of the convention, W. E. Hilliard was re-elected Treasurer, A. T. Goldbeck was elected Engineering Director, and J. R. Boyd, Administrative Director.

In changing the administration set-up of the Association, the details concerning which have previously been made known to members through direct communication from President Rodes, the Constitution and By-Laws were amended to provide for the election of the Executive Committee by the Board of Directors, instead of its appointment by the incoming President, in accord with past practice. The new Board elected the following as members of the Executive Committee for the ensuing year.

H. E. Rodes, Chairman, Nashville, Tenn.
E. Eikel, New Braunfels, Texas
Otho M. Graves, Easton, Pa.
E. J. Krause, St. Louis, Mo.
Russell Rarey, Columbus, Ohio
Stirling Tomkins, New York City
T. I. Weston, Columbia, S. C.
A. L. Worthen, New Haven, Conn.

In appreciation of the unselfish devotion of Mr. Rarey to the interests of the Association during his incumbency as President, the following tribute was unanimously adopted by the convention:

"In the discharge of your duties which have at times been arduous and difficult, you have constantly shown a desire to secure the counsel and advice of others and to be receptive to others' opinions, indicating a consideration and courtesy for the attitude of others which is not altogether a common trait of mankind. The firmness and yet gentleness with which you have administered the affairs of the Association have not only merited our high regard for your ability but have endeared you to each of us personally.

H. A. Johnson, Pres., Tipton & Mfg. Co., St. Louis, Mo.
 W. S. Johnson, Robins Conveying Belt Co., Chicago, Ill.
 L. E. McKnight, Chain Belt Co., Milwaukee, Wis.
 Albert E. Reed, The W. S. Tyler Co., Cleveland, Ohio
 J. E. Russell, E. I. De Pont De Nemours & Co., Wilmington, Del.
 Bruce G. Spence, Henschel Mfg. Co., Pittsburgh, Pa.
 J. W. Shugart, General Electric Co., Rochester, N. Y.
 C. W. Swanson, Illinois Traction Mfg. Co., St. Louis, Mo.
 John Trenchard, Atlas Powder Co., Wilmington, Del.
 E. C. Tennant, The Texas Co., New York City
 E. W. Treadwell, Treadwell & Mfg. Co., Allentown, Pa.
 Frank B. Wagner, Ludwig-Lavie Wire Co., St. Louis, Mo.
 Ray Willis, Lima Locomotive Co., Lima, Ohio.
 E. E. Wyse, Bucyrus-Rite Co., South Milwaukee, Wis.

The Treasurer of the Association, the Engineering Director and the Administrative Director are elected annually by the newly elected Board of Directors and at a meeting of the new Board held immediately following the election of the association, W. E. Hilliard was re-elected Treasurer, A. T. Gold-leaf was elected Engineering Director, and J. A. Boyd, Administrative Director.

In changing the administration set-up of the Association, the details concerning which have previously been made known to members through direct communication from President Huber, the Constitution and By-Laws were amended to provide for the election of the Executive Committee by the Board of Directors, instead of the appointment by the incoming President, in accord with past practice. The new Board elected the following as members of the Executive Committee for the ensuing year:

H. E. Huber, Chairman, Wheeling, Tenn.
 E. E. Hilliard, New Brunswick, Texas
 Otto H. Meyer, Boston, Pa.
 E. J. Kruse, St. Louis, Mo.
 Russell E. Ray, Columbus, Ohio
 Harry E. Ray, New York City
 T. J. Weston, Columbia, S. C.
 A. L. Worthen, New Haven, Conn.

In appreciation of the unselfish devotion of Mr. Ray to the interests of the Association during his incumbency as President, the following tribute was unanimously adopted by the convention:

"In the discharge of your duties which have at times been arduous and difficult, you have consistently shown a desire to secure the utmost and saving of others and to be receptive to others' opinions, fostering a consideration and courtesy for the interests of others which is not altogether a common trait of mankind. The friendship and yet gentleness with which you have administered the affairs of the Association have not only merited our high regard for your ability but have endeared you to each of us personally."

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We feel that the Association has been most fortunate in having had you as its chief executive during these trying years just passed."

The convention recorded an appropriate resolution expressing profound sorrow at the death of W. L. Sporborg, member of the Board of Directors, and for many years an ardent and enthusiastic supporter of Association work.

The very real appreciation of the delegates to the convention was expressed by resolution to E. J. Krause and the members of his family for the thoughtful courtesy and generous hospitality extended by them throughout the convention.

MANUFACTURERS' DIVISION LOSES CAPABLE LEADER IN DEATH OF GORDON BUCHANAN

His hosts of friends, among both active and associate members of the National Crushed Stone Association, will be deeply shocked to learn of the untimely death of Gordon Buchanan, which took place on Wednesday, March 4, at his residence, 167 N. Mumm Ave., East Orange, N. J., after a somewhat extended illness. Gordon Buchanan was well known in the crushed stone industry and was greatly admired and respected by those who had the privilege of his acquaintance. Since the organization of the Manufacturers' Division of the Association a good many years ago, he has unselfishly and effectively devoted himself to its interests. During the years preceding the depression the outstanding success of the annual Fall dinner meeting of the Manufacturers' Division was in very large part due to his efforts and with the resumption last Fall of this annual event, Gordon again gave generously of his time in handling the preliminary arrangements.

In well merited recognition of his enthusiastic and loyal support of the Manufacturers' Division, he was elected as its chairman for the current year at the annual meeting of the Division held during the St. Louis Convention. In his passing the Division has suffered an irreparable loss. At the time of his death Mr. Buchanan was affiliated with the Pennsylvania Crusher Company of Philadelphia, Pennsylvania, having previous to that connection been associated with the C. G. Buchanan Co. of New York City for many years.

Our profound sympathy is extended to his many friends, to the company with which he was connected and to his bereaved family.

HOUSE TURNS DOWN PRESIDENTIAL SUGGESTION FOR DEFERMENT OF FEDERAL-AID FUNDS FOR HIGHWAYS

It will be recalled that President Roosevelt in his budget message to Congress definitely recommended that the authorization of \$125,000,000 for the fiscal year ending June 30, 1937, be cancelled for that year and made applicable to the fiscal year ending June 30, 1938. The Appropriations Committee of the House, in presenting its report to that body concerning the agricultural appropriations bill, omitted the budget proposal to cancel Federal-

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aid for highways for 1937. On February 28 the House passed, without a record vote, and sent to the Senate, the agricultural appropriations bill as it was reported out of committee. This action of the House leaves the provisions of the Hayden-Cartwright Act, authorizing the appropriation of \$125,000,000 for the fiscal year 1937, in full force and effect. It is not anticipated that there will develop in the Senate any pressure to restore the President's suggestion for deferment of Federal-aid for the fiscal year 1937. Regular Federal-aid for the fiscal year ending June 30, 1937, therefore, seems reasonably certain.

CARRIERS REQUEST INDEFINITE EXTENSION OF EMERGENCY SURCHARGES AUTHORIZED IN EX PARTE 115

In view of the application of the carriers before the Interstate Commerce Commission for an indefinite extension of the emergency surcharges authorized by the Commission in Ex Parte 115, scheduled to terminate June 30, 1936, the Commission has reopened the proceedings for hearing in Washington beginning March 4. It will be recalled that the National Crushed Stone Association joined with the National Sand and Gravel Association, the National Slag Association and various local organizations of crushed stone, sand and gravel, and slag producers, in presenting extensive testimony and data before the Commission in opposition to the request of the carriers for substantial increases in the rates on these materials.

Following the decision of the Commission granting certain surcharges applicable to crushed stone, sand and gravel, and slag, a further joint petition was filed in behalf of these organizations in which the Commission was petitioned to reconsider its decision of March 26, 1935, and upon reconsideration to cancel the authorization for emergency charges and deny and disapprove any and all increases in the rates on our commodities. Without stating any reasons for its refusal to grant this petition, it was denied by the Commission.

The National Crushed Stone Association, acting jointly with the National Sand and Gravel Association and the National Slag Association, will avail itself of the opportunity afforded through the re-opening of Ex Parte 115 by filing a vigorous protest against any further extension of the emergency charges now scheduled to terminate June 30, 1936. Because of the limitations of time involved, it was not possible to solicit information from the entire membership as to the disastrous effect upon rail movements of our commodities resulting from the imposition of the surcharges. Information was solicited, however, from a selected number of rail shippers located in various sections of the country which will serve as a background in support of our position that the surcharges should be permitted to expire on June 30 in accord with the present orders of the Commission.

It seems quite probable that local hearings in connection with this matter will be scheduled in different sections of the country and as soon as definite information concerning this is at hand, notification will be given to member companies.

aid for highway for 1937. On February 15 the House passed, without a recorded vote, and sent to the Senate, the amendment appropriation bill for the fiscal year 1937. This action of the House leaves the provision of the Highway-Carterright Act, authorizing the appropriation of \$15,000,000 for the fiscal year 1937, in full force and effect. It is not anticipated that there will develop in the Senate any pretense to restore the President's suggestion for department of Federal-aid for the fiscal year 1937. Regular Federal-aid for the fiscal year ending June 30, 1937, therefore, seems reasonably certain.

CARRIAGE REQUEST IMMEDIATE EXTENSION OF
EMERGENCY ROAD FUND AUTHORITY IN LA. STATE

In view of the application of the carriage before the Interstate Commerce Commission for an immediate extension of the emergency interchange authorized by the Commission in its order of March 10, 1936, the Commission has requested the proceedings for hearing in Washington beginning March 4. It will be recalled that the National Gravel Association joined with the National Sand and Gravel Association, the National Gravel Association and various local organizations of crushed stone, sand and gravel, and slag producers, in presenting extensive testimony and data before the Commission in opposition to the request of the carriage for substantial increase in the rates on these materials.

Following the decision of the Commission granting certain surcharges applicable to crushed stone, sand and gravel, and slag, a further joint petition was filed in behalf of these organizations in which the Commission was requested to reconsider the decision of March 10, 1936, and upon reconsideration to cancel the surcharges for emergency charges and deny and discontinue to cancel the surcharges in the rates on our commodities. Without stating prove any and all charges in the rates on our commodities. Without stating any reasons for its refusal to grant this petition, it was denied by the Commission.

The National Gravel Association, acting jointly with the National Sand and Gravel Association and the National Slag Association, will avail itself of the opportunity afforded through the re-opening of its order of March 10, 1936, to present a vigorous protest against any further extension of the emergency charges now scheduled to terminate June 30, 1936. Because of the nature of the investigation, it was not possible to collect information from the entire industry as to the disruptive effect upon all segments of our commodities resulting from the imposition of the surcharges. Information was solicited, however, from a selected number of well-shippers located in various sections of the country which will serve as a background in support of our position that the surcharges should be permitted to expire on June 30 in actual with the present orders of the Commission.

It seems probable that local hearings in connection with this matter will be conducted in different sections of the country and as soon as definite information concerning this is at hand, notification will be given to member newspapers.

PLANNING FOR FUTURE HIGHWAYS

By H. S. Fairbank,
Chief, Division of Information, U. S. Bureau of Public Roads,
Washington, D. C.

In the Hayden-Cartwright Act, enacted in the summer of 1934, there appeared for the first time in Federal highway legislation a recognition of the need for definite planning of the future course of highway improvement extending beyond the main roads.

"With the approval of the Secretary of Agriculture," the Act reads, "not to exceed $1\frac{1}{2}$ per centum of the amount apportioned for any year to any State under Sections 1 and 4 of this Act may be used for surveys, plans and engineering investigations for future construction in such State, either on the Federal-aid highway system and extensions thereof or on secondary or feeder roads."

Back of this general and legal phraseology there was the definite intent to encourage and make possible the conduct of broad studies and investigations in all States, such as were believed to be needed to establish a sound basis for a future highway development plan and policy.

The funds authorized by the Hayden-Cartwright Act were \$200,000,000 as a direct grant and \$250,000,000 as Federal aid. As the aid funds must be matched by an approximately equal amount of State funds, the total expenditure, provided for by the Act to which the $1\frac{1}{2}$ per cent permission applies was \$700,000,000. To this sum, within the past year, there has been added \$400,000,000, the amount allotted for road construction and grade crossing elimination from the eight billion dollar work relief appropriation; and the rules and regulations governing expenditure of this sum also permit the use of not more than $1\frac{1}{2}$ per cent for surveys and investigations.

Thus, within the past two years there has been made available for the purpose of such studies a total of not less than \$16,000,000. A relatively small amount has been used in a few states for minor project investigations. A part has been lost to the planning purpose by obligation to construction work; but there remains much the larger part that is still available; and, in response to the urging of the Bureau of Public Roads, a large part of this remainder will now be used for comprehensive planning studies.

The particular proposal of the Bureau that has brought such welcome response was made last September. To date it has been adopted by 33 State highway departments that have definitely indicated their intention to cooperate; and eight of these State departments are already at work in the field, while the rest have progressed through various stages of the necessary preliminary arrangements.

We call these studies State-wide highway planning surveys. The name is fairly descriptive. They are in fact State-wide, since they embrace, not

MANAGING FOR FUTURE HIGHWAYS

By H. S. Fairbank,
Chief, Division of Information, U. S. Bureau of Public Roads,
Washington, D. C.

In the Highway-Construction Act, enacted in the summer of 1934, there appeared for the first time in Federal highway legislation a recognition of the need for systematic planning of the future course of highway improvement extending beyond the near needs.

With the approval of the Secretary of Agriculture, the Act reads, "not to exceed 15 per centum of the amount appropriated for any year to any State under Section 1 and 2 of this Act may be used for surveys, plans and engineering investigations for future construction in such State, either on the Federal-aid highway system and extensions thereof or on secondary or feeder roads."

Each of this general and legal phraseology there was the definite intent to encourage and make possible the conduct of broad studies and investigations in all States, such as were believed to be needed to establish a sound basis for a future highway development plan and policy.

The funds authorized by the Highway-Construction Act were \$200,000,000 as a direct grant and \$150,000,000 as Federal aid. In the old funds must be matched by an approximately equal amount of State funds. The total expenditure, provided for by the Act in which the 15 per cent limitation applies was \$350,000,000. To this sum, within the next year, there has been added \$400,000,000, the amount allocated for road reconstruction and grade crossing elimination from the eight billion dollar work relief appropriation; and the total now stands at \$750,000,000. This sum is also for the use of not more than 15 per cent for surveys and investigations.

Thus, within the past few years there has been made available for the purpose of such studies a total of not less than \$1,150,000,000. A relatively small amount has been used in a few States for minor project investigations. A large part has been lost to the planning purpose by dilution in construction work, but there remains much the larger part that is still available and, in response to the urging of the Bureau of Public Roads, a large part of this remainder will now be used for comprehensive planning studies.

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We will discuss studies State-wide highway planning surveys. The name is fairly recent. They are in fact State-wide, since they embrace, not

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the main State highway system only, as in most previous studies, but the entire mileage of rural highways. There is, perhaps, some ambiguity in the use of the word "Planning," since we shall not at present attempt to lay down a plan, but rather to develop the accurate information which is the indispensable pre-requisite of sound planning. In that respect, we hope that our effort may be distinguished from much that is done these days in the name of "Planning." We do recognize the need of facts.

There is one thing that these proposed studies are not; they are not just so many more traffic counts. Unfortunately, it is not possible to say as briefly what they are. However, a fairly compact statement would be something like this: They consist of a number of related studies that seek to determine the present state of the whole rural highway system; to rate the service rendered by the numerous parts; to prepare the way for a selection of that part of the whole system which, by reason of its relative importance and absolute utility, so far as we may now see, merits inclusion in future improvement plans; to assemble the facts necessary for an estimate of the ultimate cost of owning and maintaining the economically necessary improved system; all to the end that a definite, economically and socially defensible, integrated highway improvement program may be established and the future of highway transportation may be protected from the hazards inherent in shortsighted and shifting public policy.

Now, if you will have it so, I am prepared to confess that that definition is more compact than intelligible; but a fuller description that I shall give you after a while will, I hope, somewhat repair that defect. For the present it may be well to answer another question that may have formed itself in your minds. So, suppose we leave the question of what these planning surveys are to pass to the question why they are needed at this particular time. Since we have got along without them this long, why should we need them now?

I can answer that question best if you will let me recall some of the things we have been doing, and some we have not been doing in road building these last three or four decades.

There are some of you, I am sure, who remember as I do that some twenty-five or thirty years ago there was what we were pleased to call a Good Roads Movement, and we were quite excited about it. Every one was for or against "good roads," and those that were "for" were quite commonly banded together in what were called Good Roads Clubs or Road Boosters' Clubs - it amounted to the same thing. I know because I helped to organize a number of both of them. And the rallying cry of those clubs was, "we want good roads."

Why did we want them? Well, they talked a good deal about getting the farmer out of the mud in those days too; but I believe you would find that there were two rather more intriguing reasons. One was that we thought it would be very nice to have a few good roads so that there would be somewhere to go with the horse and buggy, or the bicycle or - the new automobile; somewhere outside of town. The other was that the next county had some; and we couldn't let the next county get ahead of us. It was almost as simple as that, as I recall it; and what it led to in road building was the construc-

the main State Highway system only, as in most previous studies, but the state mileage of rural highways. There is, perhaps, some ambiguity in the use of the word "planning," since we shall not at present attempt to lay down a plan, but rather to develop the concrete information which is the indispensable prerequisite of sound planning. In that respect, we hope that our effort may be distinguished from much that is done these days in the name of "planning." We do recognize the need of leaders.

There is one thing that these proposed studies are not; they are not just a mere traffic count. Unfortunately, it is not possible to say as briefly what they are. However, a fairly compact statement would be something like this: They consist of a number of related studies that seek to determine the present state of the whole rural highway system, to rate the services rendered by the numerous parties to prepare the way for a selection of that part of the whole system which, by reason of its relative importance and absolute utility, so far as we now see, merits inclusion in future improvement plans; to establish the basic necessity for an estimate of the utility of existing and maintaining the economically necessary improved system; and to the end that a definite, economically and socially desirable, improved highway improvement program may be established and the future of highway transportation may be predicted from the hazards inherent in short-sighted and shifting public policy.

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tion of a lot of little pieces of road. They never went very far. They never seemed to have much reason for going where they did go. But, we kept on building them all through the 1900's and - nearly everywhere - well into the teens. It was road building for pleasure! For the pleasure of joy riding! For the pleasure of just having good roads!

I say we kept at it nearly everywhere well into the teens; but there were a few places about the end of the 1900's where men began to think a little. A few years before the office of Public Roads had taken a road census and it showed that there were in the whole country then some two and a half million miles of roads. These men took a good look at those astronomical figures and they said to themselves: "Look here, we can go on building these little pieces of road until we're all gray headed and then some and still we won't get anywhere." It was then that there was born the opposition to roads that "begin nowhere and end nowhere" as they put it; which was a negative virtue that soon blossomed into the positive idea of the Limited System, and the Limited System was not only the first, but just about the best idea in highway planning that this country had had, or has had.

First one State, then another, then two or three more - that was the way they fell into line. They called these limited systems State Road Systems. Generally they connected the county seats or the big towns and we promised ourselves that we would resist the temptation to scatter our few road building dollars over a lot of other roads until we had those State roads all built and finished.

In those days we were building permanent roads and we looked forward to the time when they would be finished and we could stop spending money altogether.

But, as I have said, it was pretty well along in the teens before there was much of that sort of thing. Federal aid began in 1916, and the idea of the limited system wasn't strong enough then to get itself into the first Federal law; but it did get into the Federal Highway Act in 1921. In fact, it was the principal requirement of the amended Act, and we began at once to designate the Federal-aid highway system. A main system of interstate and intercounty highways, limited in extent to 7 percent of the total mileage of highways of record in the country at the time of passage of the Act. That was what the Act said it was to be; and that was what we tried to make it. And when we had in that way selected the roads that we thought were really important and had joined them into connected systems, you can imagine what we found out about the roads we had built with Federal aid during the previous five years? Yes, we found that about three-fourths of all those roads we had built before we had a plan were so unimportant and so scattered that they couldn't by the longest possible stretch be made to fit into the new system.

The nearly fifteen years that have passed since the passage of the Federal Highway Act have been years of intensive effort applied to the Federal-aid system and the several State systems of main roads that quickly were designated. The whole country agreed to build its most important roads first and it has stuck to the job. The lesser roads were left in the hands of local authorities to be treated by them as a purely local problem in whatever

time of a lot of little pieces of road. They never went very far. They never seemed to have much reason for going where they did go. But, we kept on building them all through the 1900's and - nearly everywhere - well into the 1920's. It was road building for pleasure! For the pleasure of the right? For the pleasure of just having good roads!

I say we kept at it nearly everywhere well into the 1920's; but there were a few places about the end of the 1900's where we began to think a little. A few years before the office of Public Roads had taken a road census and it showed that there were in the whole country then some 100,000 miles of roads. Those men took a good look at those 100,000 miles of roads and they said to themselves: "Look here, we can go on building these little pieces of road until we're all grey-headed and then some and still we won't get anywhere." It was then that there was born the opposition to roads that began in 1916 and that was the positive idea of the limited system, and the limited system was not only the first, but just about the best idea in highway planning that this country had had, or has had.

First one State, then another, then two or three more - that was the way they fell into line. They called these limited systems State Road Systems. Generally they restricted the county seats or the big towns and we graduated ourselves that we would restrict the competition to smaller or low road building districts over a lot of other roads until we had these State roads all built and finished.

In those days we were building permanent roads and we looked forward to the time when they would be finished and we could stop spending money altogether.

But, as I have said, it was pretty well along in the 1920's before there was such a thing as a Federal aid system. Federal aid began in 1916, and the idea of the limited system wasn't enough then to get itself into the first Federal law; but it did get into the Federal Highway Act in 1921. In fact, it was the principal requirement of the amended act, and we began at once to designate the Federal-aid highway system. A main system of interstate and important highways, limited to express to 7 percent of the total mileage of highways in the country at the time of passage of the Act. That was what the act said it was to be, and that was what we tried to make it. And when we had in that way selected the roads that we thought were really important and had joined them into connected systems, you can imagine what we found out about the roads we had built with Federal aid during the previous five years! Yes, we found that about three-fourths of all these roads we had built before we had a plan were so unimportant and so scattered that they couldn't be the highest possible standard he made in 1921 into the new system.

The nearly fifteen years that have passed since the passage of the Federal-aid highway act have been years of intensive effort applied to the Federal-aid system and the several State systems of main roads that partly were designated. The State systems agreed to build the most important roads first and to see about the job. The Federal system was left in the hands of local authorities to be created by them as a purely local system in whatever

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way they might find possible. The result, so far as the main roads are concerned, is eminently satisfactory. We have a network of main highways that has been improved to a point of high utility. What remains to be done to make them fully adequate for the needs of their modern traffic we can do. But, without doing anything more, we have a main highway system upon which it is possible to travel from any part of the United States to any other part, however distant, continuously upon improved roads with the possible exception of a mile or so at the beginning and end of the journey. That is the result of firm adherence to the principle of restriction of improvement effort to the limited main road system; and that was a piece of early highway planning upon which the country has every reason to congratulate itself.

There was another decision that was quite generally taken in those early days of road improvement that we also have had reason to count as fortunate. Early, we decided to reserve the motor vehicle license taxes for the support of the main roads. At first they didn't amount to much, and, such as they were, we decided in most States to hold them as a fund for maintenance. Later, when they began to grow, we found that there was a considerable balance for construction, a balance that grew and grew. The story of that growth and of the later still more rapid growth of the companion gasoline taxes is an oft-told tale that it is not necessary to tell again. What I want to say here is that so long as we held the yield of the user taxes as a fund to be devoted wholly or in large part to the improvement of the main roads, we had an assured support for that important work, to which in great measure we owe the success of the results achieved.

And there is one other remark to be made. By good fortune, native wit, or Providential guidance - I do not think it was deliberate - we avoided the temptation to kill the goose. We increased the taxes, but not faster than the service we gave in return and we kept our customers satisfied - so much so that we have seen and known that very rare phenomenon - a cheerful taxpayer.

Now these things that I have been mentioning are things that we have done in these recent decades; done, and well done. There are some other things that we have not done, and some things that we have done that it would have been better that we had not done, especially in the last few years. And I want next to touch briefly upon a few of these things.

One of the things we have not done - as States or Nation - has been to make satisfactory provision for the improvement of the local roads. There are supposed to be some 2,600,000 miles of them. Nobody knows much about them. We have left them in the hands of local authorities in whose care they have been somehow and to some extent improved. While we have been building an ordered main highway system we know that the mileage of surfaced local roads has grown. How much? Where? How well? We cannot say. About all we know is that like Topsy it has "just grown."

This step-child treatment of the local roads has been deliberate. It has been unavoidable. Fifteen years ago the paramount necessity was to build a system of main roads. The whole time since then we have been busy "doing

way they might find possible. The result, as far as the main roads are concerned, is entirely satisfactory. We have a network of main highways that has been improved to a point of high utility. What remains to be done is to make their fully adequate for the needs of their modern traffic we can do. But, without doing anything more, we have a main highway system upon which it is possible to travel from any part of the United States to any other part. However distant, continuously upon improved roads with the possible exception of a mile or so at the beginning and end of the journey. That is the result of the advance to the principle of restriction of improvement effort to the limited main road system; and that was a phase of early highway planning upon which the country has every reason to congratulate itself.

There was another decision that was quite generally taken in those early days of road improvement that we also have had reason to count as fortunate. Early, we decided to reserve the motor vehicle license taxes for the support of the main roads. At first they didn't amount to much, and, such as they were, we decided in most States to hold them as a fund for maintenance. Later, when they began to grow, we found that there was a considerable balance for construction, a balance that grew and grew. The story of that growth and of the later still more rapid growth of the construction fund is an off-odd tale that it is not necessary to tell again. When I want to say there is that as we held the yield of the motor license as a fund to be devoted wholly or in large part to the improvement of the main roads, we had an assured support for that important work, to which in great measure we owe the success of the results achieved.

And there is one other remark to be made. By good fortune, active with our Provisional Committee - I do not think it was deliberate - we avoided the temptation to bill the States. We increased the taxes, but not faster than the services we gave in return and we kept our accounts settled - so much so that we have seen and know that very rare phenomenon - a cheerful taxpayer.

Now these things that I have been mentioning are things that we have done in the recent decades, done, and well done. There are some other things that we have not done, and some things that we have done that it would have been better that we had not done, especially in the last few years. And I want next to touch briefly upon a few of these things.

One of the things we have not done - as States or Nation - has been to make satisfactory provision for the improvement of the local roads. There are expected to be some 2,000,000 miles of them. Nobody knows much about them. We have left them in the hands of local authorities in whose care they have been somewhat and so some extent improved. While we have been building an organized main highway system we have done the things of improved local roads and given the main thing that we will be honest say. About all we know is that like this it has "just grown."

This step-by-step treatment of the local roads has been deliberate. It has been unwise. It has been necessary not to build a system of main roads. The whole time since then we have been busy "doing

first things first." And all the time, we have been telling those who would have liked to have seen something more happening on the local roads, "we'll get around to you bye and bye." Well, "bye and bye" has come. The local road is going to have its day. That is the meaning of the bills that bob up in one legislature after another, all aimed at doing one thing or another on behalf of the local road. That is the meaning of the bills that in State after State become Acts. These acts do two things mainly. They shift a little more of the motor vehicle tax return to the local roads, and incidentally away from the main roads. They provide for turning over to the State highway department more or all of the local road mileage. One thing that they seldom do - I note it in passing - is to increase the total funds available for the accomplishment of the larger task they impose.

And, recently, there has been another sign that the day of the local road has come. It has been adopted by the Federal Government. Three large appropriations have been made for the improvement of "secondary or feeder roads." That others will follow is, I believe, better than a good guess.

And here I am coming very close to telling you why we are becoming so much interested in State-wide highway planning surveys. We - and when I say we I mean the State and Federal highway officials - we are going to have the responsibility for an efficient administration of a secondary and feeder road improvement program. There are said to be, as I have already mentioned some 2,600,000 miles that might lay claim to a part in that program. We know that a lot of those miles don't belong, but we don't know which, and we very much want to know.

But before I pursue this thought further, let me return again for a moment to that catalogue of things done and not done and others that should not have been done, to speak of another of the "not done's" and of one of the "should not's."

We have not done a thing that we must soon do or suffer serious pains and penalties for not doing; and when I say "we" here I mean all of us - the whole public. This thing is to appreciate that we cannot dance unless we are willing to pay the fiddler; to be more specific, that we cannot in two breaths ask for more and better roads and reduce the road appropriation. And while we are appreciating that it will be well if we will go a little further and appreciate also the fact that it isn't the cost of building roads that counts, or the cost of maintaining them, but the cost of owning them - the cost of possessing the roads we build forever after. That's what counts. If we can once grasp that, we shall soon see that it is nearly time that we had a real understanding of how many and what additional improved roads we want to go on paying for forever. As time goes on and road building goes on with it, that understanding becomes more and more imperative. As long as we stuck to the main highways we could be sure that we would want to keep up the roads we built, but when we start taking on what are popularly (but most inappropriately) called the farm-to-market roads, we had better know where we want to stop, or we shall find out one day, perhaps, that we have built more roads than we want to keep built.

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But before I pursue this thought further, let me return again for a moment to that catalogue of things done and not done and where they should not have been done, to speak of another of the "hot areas" and of one of the "should not's."

We have not done a thing that we must soon do in either serious pains and penalties for our habits; and when I say "we" here I mean all of us - the whole public. This thing is to appreciate that we cannot dance unless we are willing to pay the bill; to be more specific, that we cannot in two phrases ask for more and better roads and reduce the road appropriation. And while we are appreciating that it will be well if we will go a little further and appreciate also the fact that it isn't the cost of building roads that counts, or the cost of maintaining them, but the cost of owning them - the cost of possessing the roads we build forever after. That's what counts. If we can once grasp that, we shall soon see that it is nearly time that we had a real understanding of how many and what additional improved roads we want to go on paying for forever. As time goes on and road building goes on with it, that understanding becomes more and more imperative. As long as we stick to the main highways we could be sure that we would want to keep up the roads we build, but when we start looking on what are popularly (but most in- appropriately) called the farm-to-market roads, we had better know where we want to stop, or we shall find out one day, perhaps, that we have built more roads than we want to keep built.

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We have not at this time the means to such an understanding; and here again I approach the reason why we want to make these State-wide highway planning surveys.

But before I get into that, I recall that I promised to say something about some things that we have done in recent years that perhaps we should not have done; so I shall just mention two of them.

One was the diversion of motor-vehicle and gasoline taxes to other than road purposes. If the Federal government should decide to reduce its offsetting contributions, the loss of that diverted money may show in the roads, and it will not be easy to get it back.

Another rather short-sighted thing - however expedient it may have seemed - has been the abandonment or partial abandonment of property taxation as a road building measure. It will be difficult to get that back too, and we don't really know whether the motorist to whom we look to pay the check is going to be able to pay for all we are going to order. And, after all, property is benefited to a very considerable extent by road improvement, and especially by the improvement of the land-serving roads that are about to receive increased attention at the moment we choose to reduce land taxes.

I shall not say we would not have done these things if we had had the benefit of the facts that our State-wide highway planning surveys will produce; but I should like to think we would not have done them.

And so, having come again to the verge of the main subject, I shall stand my ground this time and tell you what it is we are going to do in the State-wide highway planning surveys.

First of all, we are going to make an inventory of the entire rural road system. We shall drive automobiles over every mile of it, measuring by odometer the length of it, and obtaining all information necessary to produce the first complete transportation maps of the country. We shall be able to put on these maps all of our rural roads. We shall know for the first time how many miles we really have. We shall not be surprised to find as, a few years ago we did find in North Carolina, that much of the mileage we think we have, simply does not exist. We shall determine what roads have been improved and what is the present state of their improvement. On the main roads we shall locate the places where the existing improvement is below the standard required for modern high-speed traffic - where sight distances are too short, where curvature is too sharp, where grades are too steep. We shall record the exact condition of every railroad grade crossing and determine the amount of the traffic over it on the road and the rails.

To this detailed knowledge of the roads we shall add complete determination of the location of all railroads, all navigable waterways, all bridges over major streams, which we shall classify as free or toll, all ferries, all rural railroad stations and wharves, and all aviation landing fields. All of this information will be mapped, producing, as I have said, the first complete transportation maps of the country.

We have not at this time the means to such an undertaking, and here again I approach the reason why we want to make these State-wide highway planning surveys.

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Another rather short-sighted thing - however expedient it may have seemed - has been the abandonment or partial abandonment of property taxation as a road building measure. It will be difficult to get that back too, and we don't really know whether the material to whom we look to pay the check is going to be able to pay for all we are going to order. And, after all, property is hampered to a very considerable extent by road improvement, and especially by the improvement of the land-servicing roads that are about to receive increased attention at the moment we choose to reduce land taxes.

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First of all, we are going to make an inventory of the entire rural road system. We shall drive automobiles over every mile of it, measuring by odometer the length of it, and obtaining all information necessary to produce the first complete transportation map of the country. We shall be able to put in three days out of our rural roads. We shall know for the first time how many miles we really have. We shall not be surprised to find out a few years ago we did find in North Carolina, that much of the mileage we think we have, simply does not exist. We shall determine what roads have been improved and what is the present state of their improvement. In the main roads we shall locate the places where the existing improvement is below the standard required for modern high-speed traffic - where sight distances are too short, where curves are too sharp, where grades are too steep. We shall record the exact condition of every railroad grade crossing and determine the amount of the traffic over it on the road and the rails.

To this detailed knowledge of the roads we shall add complete determination of the location of all railroads, all navigable waterways, all bridges over major streams, which we shall classify as free or toll, all ferries, all travel facilities, and all aviation landing fields. All of this information will be kept, probably, as I have said, the first complete transportation map of the country.

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And there will be one other exceedingly valuable result of these inventories. We shall locate and put on the maps every home, every store, every mill and factory, every church, and school, every producing mine, and oil well, in short every definite origin and destination of highway traffic in rural territory. Thus, we shall know exactly how many homes are served by every section of road and just what other interests are directly served by the roads; and that - as a basis for highway planning we regard as exceedingly important information. In from two to three months the field work of the inventory will be done, and the tabulating, classification, and mapping of the data will be well under way.

Meanwhile the traffic studies will be in progress, and these will be of several kinds. There will be the usual scheduled counts at important intersections of the main roads - key stations, as we call them - for the purpose of measuring the main-road flow and establishing factors of seasonable change.

More important, to my mind, there will be what we call "blanket counts" at thousands of points on the main roads and the local roads as well. Imagine the flow of traffic over the land as a mass of varying thickness lying upon a level plane. Where the traffic is heavy there will be a ridge; where it is light, there will be a valley. The whole irregularly shaped mass we will call the traffic solid, and its volume will represent the total usage of all our rural highways expressed in vehicle-miles. We shall locate our blanket-count stations in such manner as to develop the rise and fall of the surface of the traffic solid, in much the same way that we would select elevation points in a topographic survey and with the same object - to develop the shape of the surface - the surface of the traffic solid.

Remember that the first object of highway planning is "Selection," and you will see what we are driving at. In any highway program that we may conceive we shall not attempt to serve with improved roads every vehicle mile of traffic. To do that would mean that we would have to improve every mile of road including many that are used by very few vehicles indeed, or, as we have found, no vehicles at all. Obviously we shall not improve every mile of road; but, if not, how many shall we improve, and which particular miles shall they be?

Now think again of our traffic solid. Its total volume represents the total vehicle-mileage of traffic on the entire road system. Of that total volume, some percentage lies above the elevation that represents 1,000 vehicles a day. A larger percentage lies above 500 vehicles a day. A still larger percentage lies above 100 vehicles a day. Perhaps 95 percent of the whole volume lies above 50 vehicles a day - in other words, 95 percent of the movement of traffic over the entire road system is carried on roads of traffic density 50 vehicles a day and more. Now, if that is the case, suppose we flood the surface of our traffic solid with water to a depth of 50 vehicles a day. Rising above the lake will be all parts of the surface representing more than 50 vehicles a day and the volume of the solid above the lake level will be 95 percent of the total volume. If then we will select the roads represented by our exposed surface and incorporate them in our improvement program, we may be reasonably sure that we shall serve with improved roads 95 percent of our total highway movement. The roads represented by the surface

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below the lake level we may omit from our program and be assured that we are omitting not only the least important roads but also roads that, taken all together, serve no more than 5 percent of the total traffic. And when we come to count the mileage of the selected and the omitted roads we shall probably find that the selected mileage - the mileage that serves 95 percent of the total traffic - represents not 95 percent of the total mileage but far less than that, probably less than 50 percent, perhaps less than 40 percent.

It is such a determination and such a method that we have in view in our blanket counts. The information they supply will permit a selection of roads on the basis of relative traffic service. We join that information to the facts produced by the inventory that permit a determination of relative property service, and we have the two principal guides to rational system selection. With other modifying factors - the agricultural characteristics of the land, the general economic prospects of each section, and other considerations - they will afford a convincing answer to the question: What additional roads shall we improve?

To this the determinations of the weight of vehicles operating over the roads, made at "loadometer" and "pit-scale" stations, will add a knowledge of the type of improvement required on every selected mile; and tell us how many miles must be designed for heavy truck movement and how many will serve mainly the lighter vehicles - information that bears directly upon the question of the relative contribution that should be made in taxes by the heavy and light vehicles for the support of the improvement program.

To these and other determinations of the physical dimensions of the improvement program, rationally arrived at, we will adjoin the findings of studies financial in character. Studies designed to show what taxes are now levied for road purposes; the yield of such taxes; and who pays them; how much rural residents pay and how much urban residents pay. Studies to show how the taxes raised are expended; how much for construction; how much for maintenance; how much on main roads; how much on lesser rural roads, how much on city streets. Studies to show how the benefits of road service received by various elements of the population - city people, country people; motor vehicle owners, non-motor vehicle owners, etc. - relate to the payments by each element. These are for the purpose of establishing the facts - of which there is a lamentable ignorance - as to just how much we are now paying for roads and who is paying it, for the purpose, among others, of adjustment of inequalities.

And finally there will be another class of financial studies, the object of which will be to establish the elements of the equation of annual road cost - the factors of capital cost, and road life, and maintenance cost - which, applied to any projected program of improvement will determine, not how much it will cost to build the projected roads or how much to maintain them but rather - that which above all is significant - how much it will cost annually to own them in perpetuity. It is that cost that the public - that wants the roads, that needs the roads - must be prepared to pay. It is in terms of that cost only that a limit may reasonably be put upon the road improvement program; and it is the fixing of that limit and the evaluation of road service obtainable within it that is the final object of our State-wide highway planning surveys.